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TITLE: Arrayable thermal assays

Brief Summary Text (19):
There is therefore a need for a system and method allowing micromethods that facilitate arrayable thermal assays. Such a system should be able to provide information about the relative binding affinities of different ligands for a receptor protein, for many samples simultaneously. A calorimetric assay system is also needed to facilitate screening of combinatorial libraries, which are collections of chemical or biochemical compounds synthesized by combining chemical "building blocks" or groups as reagents, typically in a combinatorial or quasi-combinatorial manner. An enormous number of compounds can be created, with theoretically distinct compounds numbering in the millions or billions (10.sup.9). Combinatorial libraries can be screened, for example, by examining the extent of binding of a reagent with a target molecule of interest. A filamentous phage display peptide library (which is a form of combinatorial library created by recombinant technology) can be screened for binding to a biotinylated antibody, or other receptor. Often, library screening techniques require the use of chemical labels or tags. There is a real need for acquiring relative binding affinities for a large number of samples in a short time without the use of chemical markers. For isothermal titration calorimetry, Differential Scanning Calorimetry (DSC) and Differential Thermal Analysis (DTA), the approach is time consuming. Three thermal scans per day are routine, and relatively large sample sizes limit productivity.